


Exhibit D

Evaluation of 2021 Pharmacist Workload Survey
Conducted by the State of Ohio Board of Pharmacy
In Support of Case: 1:18-op-46326-DAP
Montgomery County Ohio Litigation

J. Ann Selzer, Ph.D., President, SELZER & COMPANY

A handwritten signature in black ink, appearing to read "J. Ann Selzer", with a stylized, flowing script.

December 12, 2022

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I. DESCRIPTION OF ASSIGNMENT

I have been retained by counsel for The Kroger Co. to comment on a completed survey conducted by the State of Ohio Board of Pharmacy. I am reviewing the following documents:

State of Ohio Board of Pharmacy. (2022). *2021 Pharmacist Workload Survey*. Retrieved December 5, 2022, from <https://www.pharmacy.ohio.gov/documents/lawsrules/pwac/meetingmaterials/2021%20pharmacist%20workload%20survey.pdf>

State of Ohio Board of Pharmacy. (2021). *2020 Pharmacist Workload Survey*. Retrieved December 5, 2022, from <https://www.pharmacy.ohio.gov/documents/lawsrules/pwac/committeeinformation/2020%20pharmacist%20workload%20survey.pdf>

McNamee, C. deposition. MDL No. 2804. Case No. 1:17-MD-2804. RE: National Prescription Opiate Litigation, Case Track 7. United States District Court, Northern District of Ohio, Eastern Division, Columbus, Ohio, November 3, 2022.

Davis, R., deposition. MDL No. 2804. Case No. 1:18-op-46326-DAP. RE: National Prescription Opiate Litigation, Case Track 7. United States District Court, Northern District of Ohio, Eastern Division, Cincinnati, Ohio, June 10, 2022.

II. QUALIFICATIONS

I earned a Ph.D. in communication research from the University of Iowa, focusing on quantitative research methods. I served for more than two years as senior research analyst for Peter D. Hart Research Associates of Washington, DC, a leading public opinion research firm. From there, I became the director of The Iowa Poll and research manager for *The Des Moines Register* from 1987 to 1992, when I left to give full attention to my research company, Selzer Boddy, Inc., which later became Selzer & Company. Since 1997, Selzer & Company has directed The Iowa Poll. The firm has also launched other news polls, notably for *The Indianapolis Star*, *The Detroit Free Press*, and Bloomberg News.

My company has conducted hundreds of surveys for a diverse clientele. In addition to strategic work for newspapers (including *The Boston Globe*, *The Dallas Morning News*, *The San Diego Union-Tribune*, and *The St. Louis Post-Dispatch*) and industry groups (including the American Press Institute and the Newspaper Association of America), we have worked for many clients in Iowa (including Iowa Health Systems, the Child and Family Policy Center, the Iowa Department of Public Health) and in a variety of industries (including software developer Intuit, brand licensor Hang 10, and others). We also conducted strategic work including surveys and focus groups for Fareway, a family-owned Midwest grocery store chain based in Iowa.

In 1991, I edited and was the chief contributor to a book on newspaper marketing research. My chapters discussed sampling theory and methods and data analysis and interpretation.

In 2004, I received the Research Award of Merit from the Newspaper Association of America, the leading industry trade association, for my career contributions to the field of newspaper research. I was the youngest recipient to win. Noteworthy in my contribution was a study of data quality arising from five data collection methods, commissioned by the Newspaper Association of America. This work has been presented at CMOR (Council for Marketing and Opinion Research) and AAPOR (the American Association of Public Opinion Research).

Since the inception of pollster ratings on the FiveThirtyEight.com website (produced by Nate Silver), Selzer & Company has received the highest possible rating of A+. This is the result of Silver's statistical analysis of polling firms active in the final runoff to elections. His latest analysis included 493 polling firms and awarded four A+ ratings. This signifies an exceptional level of accuracy. Most survey research is not conducted in the context of a real-world outcome in order to judge accuracy. Silver's assessment reflects that election after election, the work my firm does very closely matches the actual outcome of elections.

My hourly rate is \$300 for report preparation and \$500 for testimony. I am also reimbursed for out-of-pocket expenses. My assistant Michelle Yeoman provided research and clerical support for services; her hourly rate is \$175. I am providing invoices for my services in connection with this report. I am not compensated based on the outcome of this matter nor the substance of my report.

My opinions are my own and are stated to a reasonable degree of professional certainty.

III. EXECUTIVE SUMMARY

As described in the 2020 study, this is a survey about workload, stress, job responsibilities and ordinary workplace challenges. "The intent of the survey was to capture feedback on *pharmacist working conditions* in the state" (State of Ohio Board of Pharmacy, 2021, p. 1. Emphasis added).

I have been asked for my professional opinion of the usefulness of this survey in understanding the role of pharmacists and pharmacies in opioid abuse and diversion. This survey does not provide data on that topic—it is not a survey about pharmacists' and pharmacies' roles in opioid abuse and diversion. There were no questions about opioids. There were no questions about patient requests for controlled substances. There were no questions about procedures pharmacists follow when dispensing controlled substances. While the survey asks about patient safety across several questions, it would be an unsubstantiated leap to believe the answers to these questions reflect pharmacists' specific concerns with the dispensing of opioids. Some pharmacists may have concerns about that, but this survey did not purport to measure that, nor do we have evidence this was what pharmacists had in mind as they answered questions.

This conclusion is supported by a review of the 1,223 respondent comments from those who chose to type in any additional thoughts on topics related to the 2021 survey (State of Ohio Board of Pharmacy, 2022, p. 95-219). This review shows a decided absence of concern about opioid abuse and diversion. This review revealed very few references to opioids, narcotics, addiction, etc.

In addition, because of methodological flaws in how the survey responses were tabulated, we cannot be certain that the opinions expressed in the data reflect a larger pool than the 2,969 licensed pharmacists working in Ohio who completed the survey. The data is not generalizable beyond the respondent pool.

In sum, this survey on workplace concerns does not substitute for a valid measurement of pharmacists' views of opioid misuse and diversion, including how they are dispensing opioids in Ohio.

IV. SURVEY FACTS

- A. The investigator.** Mr. McNamee, the director of policy and communication for the State of Ohio Board of Pharmacy (SOBP), directed the survey and authored the report. While there were consultations among Board staff and others in the pharmacy field, no survey experts were consulted, according to the McNamee deposition (McNamee Dep. 214:12-216:17, 217:10-12.). Mr. McNamee states he does not hold a degree or have any training in survey design (McNamee Dep. 240:10-23.). McNamee states he believes the survey is accurate, complete and reliable (McNamee Dep. 68:2-4.).
- B. Description of method.** This is a self-administered survey, with email invitations sent to all eligible Ohio pharmacists. There was no sample drawn for this study. Therefore, all pharmacists licensed by the SOBP with an Ohio address were included in the email invitation list. Each pharmacist was assigned a unique .url address to avoid duplicated responses. On questioning, no effort was made to remove those who are licensed but not practicing. The respondent pool is currently licensed pharmacists (McNamee Dep. 221:24-222:20.).

Non-respondents were sent multiple invitations to participate in the survey, though it's not clear how many (McNamee Dep. 217:3-7.).

McNamee mentions a software tool called Microsoft Business Intelligence was used to capture data (McNamee Dep. 224:12-18.). While we are not familiar with that product, it does not raise red flags.

As is standard, respondent answers were not connected to their name or their employer to preserve confidentiality (McNamee Dep. 62:21-65:9.).

V. RELATING THE SOBP SURVEY RESPONSES TO OPIOID ABUSE AND DIVERSION

My assignment as an expert in survey research is not mainly to pick apart the methods used in the survey. It is not perfect, and I'll discuss that later only as it pertains to whether the responses are or are not an accurate cross-section of all licensed pharmacists working in Ohio.

My assignment is to evaluate the degree to which the responses to this survey, even if the method were perfect, can give insight into the perceived role pharmacists and pharmacies play in opioid abuse and diversion. The answer is this survey did not have any intent to study this topic; it was not, therefore, designed to give this kind of insight. There is miniscule evidence pharmacists had opioid abuse and diversion or how opioids are dispensed in mind as they answered the questions.

In short, this survey is not a valid test of pharmacists' opinions or attitudes on how their work is related to opioid abuse and diversion.

The concept of validity in survey research addresses whether the results of the survey accurately answer the research questions at issue. Market researcher Michaela Mora sums up the meaning of survey validity:

Validity is concerned with the accuracy of our measurement. . . .[I]t depends on asking questions that measure what we want to measure (Mora, 2011) . . .

[Content validity] is related to our ability to create questions that reflect the issue we are researching and make sure that key related subjects are not excluded (Mora, 2011).

The SOBP 2021 survey is a valid attempt to understand workplace issues among licensed pharmacists working in Ohio. This survey was not designed to provide insights on opioid abuse and diversion and the role pharmacists and pharmacies might or might not play. There are no questions about opioids. It is therefore unreasonable to claim that this survey can be used for that purpose.

Validity, then, is the crux of the matter for this survey. Mr. McNamee is clear on the purpose of the study in the email to eligible pharmacists in Ohio in April 2021 announcing the release of data from the 2020 survey. Here are key phrases from the report on the 2020 survey speaking to the intent and purpose of the survey:

The intent of the survey was to capture vital feedback on pharmacist working conditions in the state (State of Ohio Board of Pharmacy, 2021, p. 4). The 2021 survey is described as a “follow-up survey” from the 2020 survey, and no additional details on method or purpose were included in the report (State of Ohio Board of Pharmacy, 2022, p. 1).

Purpose: The purpose of the advisory committee is to promote patient safety and compliance with Ohio laws and rules by analyzing survey and other data and make recommendations to the Board to address pharmacist working conditions. Committee recommendations may include changes to Board of Pharmacy rules as well as statutory changes (State of Ohio Board of Pharmacy, 2021, p. 2).

Pursuant to rule 4729-2-01 (B) of the Ohio Administrative Code, the State of Ohio Board of Pharmacy proposes the creation of a Pharmacist Workload Advisory Committee to ensure compliance with the following Ohio laws and rules.

Section 4729.55, which states: Adequate safeguards are assured that the applicant will carry on the business of a terminal distributor of dangerous drugs in a manner that allows pharmacists and pharmacy interns employed by the terminal distributor to practice pharmacy in a safe and effective manner.

Rules 4729:5-5-02 and 4729:5-9-02.1 (pending) of the Administrative Code which state: The pharmacy shall be appropriately staffed to operate in a safe and effective manner pursuant to section 4729.55 of the Revised Code (State of Ohio Board of Pharmacy, 2021, p. 1).

A. Content of survey questions. The 2021 Ohio survey includes 16 main questions and space for respondents to type in comments. Nowhere in the reports on the 2021 or 2020 surveys is an expressed goal of understanding the role of pharmacists or pharmacies in opioid abuse and diversion. The questions are these:

Q.1 Please identify your primary practice setting:

Respondents were offered the following answer options:

- Independent (only one location)
- Small chain (more than 1, but less than 12 locations)
- Large chain—grocer/big box store

Large chain—standalone
Long-term care
Mail order
Hospital
Other

Q.2 I feel that I have adequate time to complete my job in a safe and effective manner.

Respondents were offered the following answer options:

Strongly disagree
Disagree
Neutral
Agree
Strongly agree

Q.3 I feel that my work environment has sufficient pharmacist staffing that allows for safe patient care.

Respondents were offered the same agree/disagree answer options.

Q.4 I feel that my work environment has sufficient pharmacy technician staffing that allows for safe patient care.

Respondents were offered the same agree/disagree answer options.

Q.5 I feel that staffing at my pharmacy is adequate to prevent delays in patients receiving medications in a timely manner.

Respondents were offered the same agree/disagree answer options.

Q.6 I feel pressure by my employer or supervisor to meet standards or metrics that may interfere with safe patient care.

Respondents were offered the same agree/disagree answer options.

Q.7 I feel that the workload to staff ratio allows me to provide for patients in a safe and effective manner.

Respondents were offered the same agree/disagree answer options.

Q.8 I am given the opportunity to take lunch breaks or other breaks throughout the workday.

Respondents were offered the same agree/disagree answer options.

Q.9 I feel that additional services (such as immunizations, testing, etc.) without additional staffing for those services will delay patients from getting their medications in a timely manner.

Respondents were offered the same agree/disagree answer options.

Q.10 I feel safe voicing any workload concerns to my employer.

Respondents were offered the same agree/disagree answer options.

Q.11 Please respond to each statement based upon your experience over the past six months:

I have seen an increase in medication errors
I have felt burnt out because of my work
I have felt down, depressed or hopeless because of my work
I have experienced workplace violence or harassment

Respondents were offered the same agree/disagree answer options for each statement.

Q.12 Please rate your level of satisfaction with the following in your primary place of employment:

Your work schedule
Your pharmacist co-workers
Your pharmacy technician co-workers
Your level of workload
Your pay
Ability to use your knowledge
Opportunity for advancement
Your benefits
Your level of stress
Fair treatment from management
Opportunities for advancement/development

Respondents were offered the following answer options:

Highly dissatisfied
Dissatisfied
Neutral
Satisfied
Highly satisfied

Q.13 Please rate the amount of stress each of the following places on you at your job:

The amount or volume of work you have to do
Being short-staffed at my work
Other employees not picking up their fair share of work
Patients/customers/families who are rude or impatient
Dealing with staff from other health care providers on prescription or medication orders
Dealing with payers (e.g., insurance companies) on prescriptions or medication orders
Inadequate technology, hardware, and other resources needed for me to be effective in my work

Poorly designed workflow and division of tasks/responsibilities among workers at my job

Lack of rest breaks or time to take scheduled rest breaks

Respondents were offered the following answer options:

Basically very little, or no stress

Not that much stress

Some amount of stress

A good deal of stress

A tremendous amount of stress

Q.14 In the past two years, did you change your primary place of employment due, in whole or in part, to working conditions you experienced?

Respondents were offered answer options of yes or no.

Q.15 How would you characterize your commitment, or loyalty to remaining a pharmacist?

Respondent were offered the following answer options:

I am looking or plan to leave this career altogether

I do not have other plans currently, but it might not take much for me to change careers

In spite of challenges or shortcomings, I feel good about this line of work and hope to make a career of it for quite some time

I feel completely committed and am definitely in this career for my entire worklife

Q.16 Do you think duties of pharmacy technicians should be expanded to include additional clinical responsibilities?

Respondents were offered the following answer options:

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

1. Interpretive comment. Question language addresses workload, stress, job responsibilities and other workplace challenges. The survey's closed-ended questions did not address opioids in any context whatsoever. The idea that pharmacists answered the closed-end questions with opioids on their mind is a leap.

B. Relation of survey responses to the complaint. In short, they do not relate to the complaint. There are zero questions about the following elements mentioned in the long-form complaint in Case: 1:18-op-46326-DAP, pp. 3-5,13-18, 99:

- Unfettered and unlawful distribution of opioids in Montgomery County [Paragraph 1]

- Prescriptions for opioids and narcotics [2]
- The number of opioid prescriptions dispensed in the pharmacy [3]
- Time available to conduct due diligence to prevent the diversion of opioids to an illicit market [4]
- Knowledge of any attempt to facilitate the diversion of prescription opioids in the pharmacy [8]
- Any practices that were followed or ignored to monitor, report, and reject suspicious orders of controlled substances [9]
- Any knowledge or observation of drugs being diverted or used other than for legitimate medical purposes [9]
- Knowledge of overdoses [18]
- Knowledge of or observation of addiction to opioids [20]
- Opinions about whether the pharmacist believed they were or were not exercising reasonable care in delivery dangerous narcotic substances [39]
- Security, recordkeeping, monitoring and reporting requirements designed to identify or prevent diversion [44]
- Knowledge of inventories of controlled substances [46]
- Knowledge of quotas assigned to controlled substances by the DEA [47]
- Any practices involved in detecting, investigating, and refusing to fill and report suspicious orders of opioids [50]
- Observation of suspicious orders of opioids [52]
- Any training to report and halt suspicious orders [329]

A survey designed to provide insight into the potential role of pharmacists and pharmacies in opioid abuse and diversion would have to ask questions about these topics directly and overtly.

- C. **Review of respondent comments.** Not only are there no questions about opioids, but there are also very few references to opioids in respondent comments. Question 17 in the survey invited respondents to add comments, if they so chose: “Q17 Please provide additional comments about the survey or about your job/career as a pharmacist. REMINDER: Do not include your name or other information that would identify you in the comments” (State of Ohio Board of Pharmacy, 2022, p. 95).

A search of the 1,223 comments submitted by respondents shows miniscule evidence respondents had the opioid epidemic on their minds. (See Appendix I and II.)

- 6 respondents mention “opioid” for a total of 14 instances of the word.

- In 2020, 10 respondents mention “opioid” for a total of 13 instances of the word.
- 1 respondent mentions “Narcan.”
 - In 2020, 1 mention.
- 0 respondents mention “Naloxone.”
 - In 2020, 1 mention.
- 2 respondents mention “narcotic.”
 - In 2020 4 respondents mention “narcotic.”
- 0 respondents mention “due diligence” or “diligence.”
 - In 2020, 0 respondents mention “due diligence” or “diligence.
- 1 respondent mentions “diversion.”
 - In 2020, 1 respondent mentions “diversion.”
- 0 respondents mention “suspicious.”
 - In 2020, 0 respondents mention “suspicious.”
- 3 respondents mention “controlled substance.”
 - In 2020, 4 respondents mention “controlled substance,” “controlled medication,” or “controlled and other dispensings.”
- 0 respondents mention “overdose.”
 - In 2020, 2 respondents mention “overdose.”
- 1 respondent mentions “addiction” or “addict.”
 - In 2020, 0 respondents mention “addiction” or “addict.”
- 2 respondents mention “abuse” in the setting of drug abuse by the public
 - In 2020, 2 respondents mention “abuse” in the context of drug abuse.
- 16 respondents mention “abuse” in the context of the abusive treatment they receive
 - In 2020, 10 respondents mentioned abuse experienced by pharmacists.

1. **Interpretive comment.** What I mean by miniscule evidence is that less than one percent of respondents typed the word “opioid” as part of their comments. It’s 0.49% of all who commented and 0.20% of all pharmacists responding to the survey. The word “abuse” was mentioned by 22 respondents for a total of 35 times—almost all referencing the abuse pharmacists feel they endure. [See Appendix I.]

There were no questions about COVID in the survey conducted in 2021, yet the word “COVID” appears in comments 345 times. In the survey conducted in 2020, the word appears 174 times. [See Appendix I and II.]

The ideas that opioids were on pharmacists’ minds as they answered this survey is not supported by evidence. No judgment can be made about how respondents view the role of pharmacists and pharmacies in opioid abuse and diversion, including pharmacists’ ability to safely dispense opioids.

- D. **Summary of survey data.** Without regard to whether the respondent pool is reflective of a cross-section of all licensed pharmacists working in Ohio, here are questions the data answer. (State of Ohio Board of Pharmacy, 2022).

Do a majority of responding pharmacists express concern that they have enough time for patient care? Yes.

- In Q.2, 71% of respondents disagree (including 40% who strongly disagree) with the statement, “I feel that I have adequate time to complete my job in a safe and effective manner” (p. 6).

Do a majority express concern that they have adequate staffing by pharmacists to allow for safe patient care? Yes.

- In Q.3, 68% disagree (including 39% who strongly disagree) with the statement, “I feel that my work environment has sufficient pharmacist staffing that allows for safe patient care” (p. 11).

Do a majority express concern that they have adequate staffing by pharmacy technicians to allow for safe patient care? Yes.

- In Q.4, 75% disagree (including 49% who strongly disagree) with the statement, “I feel that my work environment has sufficient pharmacy technician staffing that allows for safe patient care” (p. 16).

Do a majority express concern that they have adequate staffing to prevent delays? Yes.

- In Q.5, 70% disagree (including 41% who strongly disagree) with the statement, “I feel that staffing at my pharmacy is adequate to prevent delays in patients receiving medications in a timely manner” (p. 21).

Do a majority feel pressure by their employer or supervisor to meet standards or metrics that may interfere with safe patient care? Yes.

- In Q.6, 59% agree (including 33% who strongly agree) with the statement, “I feel pressure by my employer or supervisor to meet standards or metrics that may interfere with safe patient care” (p. 26).

Do a majority express concern about workload-to-staff ratios? Yes.

- In Q.7, 72% disagree (including 37% who strongly disagree) with the statement, “I feel the workload to staff ratio allows me to provide for patients in a safe and effective manner” (p. 31).

Do a majority express concern about taking on additional services without additional staffing? Yes.

- In Q.9, 88% agree (including 65% who strongly agree) with the statement, “I feel that additional services (such as immunizations, testing, etc.) without additional staffing for those services will delay patients from getting their medications in a timely manner” (p. 41).

Do a majority fear voicing workload concerns to their employers? Yes.

- In Q.10, 72% disagree (including 37% who strongly disagree) with the statement, “I feel safe voicing any workload concerns to my employer” (p. 46).

Have a majority seen an increase in medication errors? Yes.

- In Q.11, based on their experience over the past six months, 54% agree (including 16% who strongly agree) with the statement, “I have seen an increase in medication errors” (p. 51).

Are a majority experiencing burnout? Yes.

- In Q.11, based on their experience over the past six months, 86% agree (including 62% who strongly agree) with the statement, “I have felt burnt out because of my work” (p. 51).

Are a majority reporting feelings of work-caused depression or hopelessness? Yes.

- In Q.11, based on their experience over the past six months, 69% agree (including 38% who strongly agree) with the statement, “I have felt down, depressed, or hopeless because of my work” (p. 51).

Are a majority of responding pharmacists dissatisfied with elements of their primary place of employment? Yes.

- In Q.12, 81% of respondents are dissatisfied with their level of stress and 76% with their level of workload (p. 59).

Are a majority feeling at least a good deal of stress from elements of their jobs? Yes.

- In Q.13, 81% rate the amount or volume of work they have to do as placing at least a good deal of stress on them (including 46% who say it causes a tremendous amount of stress). 76% say the same about being short-staffed at their work (including 55% who say it causes a tremendous amount of stress) (p. 67).

1. **Interpretive comment.** Because of some methodological questions, I cannot say for certain that the findings above do indeed represent knowledge of the general population of licensed pharmacists working in Ohio.

VI. METHODOLOGICAL ISSUES

My remarks so far have addressed the mismatch of the survey content to the question of how respondents perceive the role pharmacists and pharmacies play in opioid abuse and diversion.

Beyond that, there are questions of whether the survey responses should be understood to reflect an accurate view of all licensed pharmacists working in Ohio. There are methodological issues with this survey which cast doubt on this.

A. Background on survey concepts

1. **The meaningful universe.** This is the population under study. It might be likely voters, or the general public, or members of an association, or employees of a company, and so on.

2. **Sample design.** Sampling is the process of selecting who participates in a survey. “The fundamental goal of a survey is to come up with the same results that would have been obtained had every single member of a population been interviewed” (Newport et al., 1997).

Sometimes, there is no need to sample because the population under study may be relatively small, so a sample does not need to be drawn—all who meet the criteria of the population are invited to participate and no one is left out.

3. **Survey design.** A survey instrument has to work for several audiences. It must represent the goals of the investigator, it must be easy for respondents to understand, and it must allow responses to be captured for tabulation and analysis efficiently. Respondents should feel comfortable giving any of the answer options listed, and they should feel the questions are not biased toward some wished-for response.

4. **Weighting.** Commonly, survey researchers adjust gathered data to address any non-response errors.

The weighting process is a statistical procedure by which the sample is checked against known population parameters to correct for any possible sampling biases on the basis of demographic variables such as age, gender, race, education, or region of country (Newport et al., 1997).

5. **Non-response error.** This survey, like many other contemporary surveys, faces problems of non-response. Some people choose not to participate in surveys, and some choose to participate in every survey they have the opportunity to complete. The public opinion research industry devotes whole conferences to the question of non-response and what to do about it. In this case, 79.89% of eligible pharmacists did not respond to multiple invitations to participate in the survey.

This begs the question of whether those who did respond are different in some meaningful way from those who did not.

Survey researchers try to reduce non-response error by weighting data to known population parameters. They might adjust by age, sex, and area of residence, for example, to make their relatively small respondent pool look like a reasonable cross-section of the population under study. This means some respondents’ answers get discounted a bit and some are inflated a bit so that the final respondent pool is balanced to the known population.

6. **Reliability.** A survey is deemed reliable if the same instrument and method is conducted repeatedly and yields similar answers, within what is commonly referred to as the margin of error.

Reliability is the extent to which an instrument would give the same results if the measurement were to be taken again under the same conditions: its consistency (Morrison, 2019).

B. Concerns with Survey Method

1. **Sample frame and response rate.** The report for the 2021 survey states that 14,759 Ohio pharmacists received the survey, with 2,969 responding (State of Ohio Board of Pharmacy, 2022, p. 2). The phrase “received the survey” is not clear, in that this may be the number of surveys sent to Ohio pharmacists, or that the survey investigator had a way of verifying the number of surveys actually received. In many cases, email addresses change, or emails go unnoticed or end up in junk or spam folders.

The response rate is 20.11%. It is noted that this survey is a follow-up from a 2020 survey conducted in the same way, we presume. In that report, the response rate is stated to be 26.41%. Note that report says the survey was *sent to* 15,747 pharmacists and responses were gleaned from 4,159 licensed pharmacists working in Ohio (State of Ohio Board of Pharmacy, 2021, p. 5).

The number of pharmacists who were sent/received the survey invitation is a hard, real-world fact. 2021 had 988 fewer pharmacists sent the survey than in 2020. 1,190 fewer pharmacists responded, reflecting the lower response rate. Neither the report nor Mr. McNamee’s deposition mention this change in the pharmacist population. It would seem relevant to explain a drop of 6% in the number of licensed pharmacists in one year’s time.

2. **Weighting.** There is no discussion of whether the data were adjusted so it would conform to known population parameters, so we assume it was not.

- a. **Interpretive comment.** Weighting for known real-world descriptors of the full list of licensed pharmacists could have reduced the difference in answers between the 2020 and 2021 surveys. As it stands, we do not know if the changes in the findings are due to real changes of opinion reflective of the full complement of licensed pharmacists or are a result of self-selection bias.

If the SOBP has data such as age, sex, and geographic region in their license database, the report does not include such information. If the SOBP knows from its database the primary practice setting for each licensee, this would have been a variable that could have been used to weight the data.

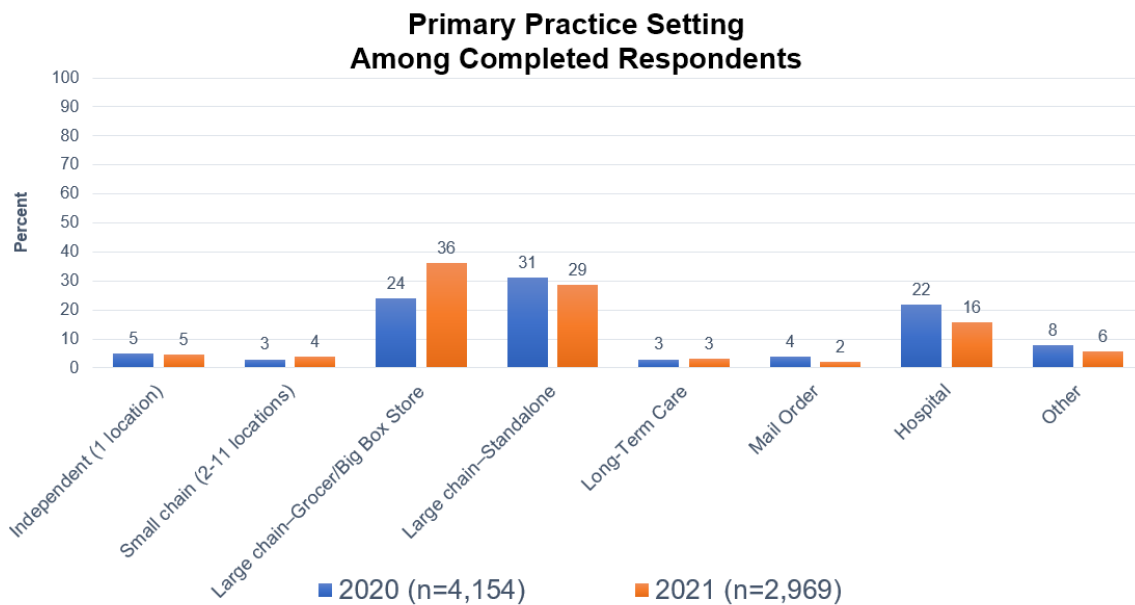
When we work with clients’ customer, member, or employee databases, this is one of the first things we want to establish—whether they can provide metrics so we can make sure our respondent pool looks like an accurate cross-section of all in their eligible database. We might ask for how long customers/members have been part of the organization, age, sex, and geography. That way, we will know the accurate distribution by these variables and we can make our respondent pool look like the full list of customers, members, or employees.

Without a real-world baseline to guide adjustments, we could not be confident that the findings from a survey of a sample of the database is an accurate representation of the full database.

In this case, we do not know that the data presented in the 2021 survey is *not* accurate. But we have no gauge to signal that it is, in fact, an accurate assessment of all licensed pharmacists working in Ohio.

3. **Change in the respondent pool.** The data show two changes in the makeup of the respondents pool by primary practice area beyond what we would consider normal: Those who work at hospitals (down 6 percentage points) and those who work at large chain-grocer/big box stores (up 12 percentage points).

Figure 1.



SOBP 2020 survey Q.10 (p. 23); SOBP 2021 survey Q.1 (p. 4)

The drop in hospital-based pharmacists represents a decrease of 27%. In the 2020 survey, hospitals were broken out by outpatient and inpatient facilities. It is not obvious if or how that would affect the number answering that their primary practice setting is in a hospital.

The rise in large chain-grocer/big box store pharmacists is quite large, representing a 50% increase.

These two datapoints are not normal variations as we see with other types of settings.

- b. **Interpretive comment.** The SOBP report does not answer the question of whether these changes are reflective of real-world shifts in the number of pharmacists and where they work in Ohio. It could be that the second year of COVID changed the landscape for pharmacies and pharmacists. Alternatively, it could be that large chain-grocer/big box store pharmacists

responded in disproportionately large numbers—indicative of response bias. The report is silent on these matters.

Further, we do not know what statistics the SOBP has at its disposal that could help clarify whether the jump in pharmacists working at large chain—grocer/big box stores and the drop in those working at hospitals (inpatient or outpatient) reflect what actually happened in the course of a year. The report offers no independent accounting for how many pharmacists work in any of the primary practice settings respondents were asked about.

If the SOBP does have objective knowledge of how many pharmacists work in each of the primary practice settings, then that data should have been used to weight the findings, ensuring distribution of practice settings matches the real world.

Because they did not weight the data to any potentially known population parameters, we do not know which of the two surveys (2020 and 2021) is a better representation of primary practice settings, or if neither is accurate.

C. Generalizability

The point of conducting any survey is to use answers from relatively few members of the meaningful universe under study to reflect all who meet the criteria of that meaningful universe in the real world. In other words, the investigator wants to make claims about the population using data from a sample. They want to generalize the findings beyond just those who participated in the survey.

Definition of Generalizability: (*noun*) The extent to which findings from a study can be applied to a larger population or different circumstance (“Generalizability,” n.d.)

The 2021 SOBP survey did not draw a sample. Rather it solicited responses from all pharmacists who met its criteria: To hold a license with the Board and to be working in Ohio. The response rate of 20.11% indicates that 79.89% did not respond. That may or may not harm the generalizability on its own.

1. **Interpretive comment.** I’ve made the point previously that because the report did not include any information about real-world parameters of licensed pharmacists working in Ohio beyond the raw count of how many there are, we cannot judge whether the survey findings do or do not represent the full universe.

This inability to judge the generalizability also pertains to specific groups of pharmacists. We do not know whether the 1,071 respondents who indicate their primary practice setting is a large chain-grocer/big box retail environment is reflective of all who work in that kind of setting. We do not have information on how many pharmacists were employed in this setting in order to calculate a specific response rate for that setting.

We do know that the question about this setting changed from 2020 (Large chain (more than 12 locations): Grocer) to 2021 (Large chain-grocer/big box store). In 2020, 1,000 respondents indicated they work in that setting; in 2021, it was 1,071. We do not know what impact that change in wording would or would not have had.

We do know that, proportionately, this was an increase of 50% for respondents in this setting. It was 24% of responding pharmacists in 2020 and 36% in 2021. We have no data to explain the increase. We cannot judge which year is a more appropriate representation of this subgroup of pharmacists. Maybe neither is. Maybe both are because of real changes in the pharmacists' employment.

Similarly, we cannot generalize the findings from the 2021 survey (or the 2020 survey for that matter) to any other period of time. We have no data on the attitudes of licensed pharmacists working in Ohio toward workplace issues or any other topic before the 2020 survey. Any assumption that the data of the current survey represents any other timeframe is not tenable.

In addition, we cannot generalize the findings from this survey to pharmacists employed by The Kroger Co. specifically. In the 2021 study, four respondents mention Kroger. That is 0.3% of the 1,223 who commented and 0.1% of 2,969 who responded to the survey. In the 2020 study, 14 respondents who commented mention Kroger, which is 0.3% of the 4,159 who responded to the survey. To assume that the remaining comments that did not reference Kroger by name are actually about The Kroger Co. is untenable.

VII. SUMMARY

The 2021 SOBP survey is flawed in its method and reporting. The data provided by the survey may reflect the opinions of the 2,969 licensed pharmacists working in Ohio *who completed the survey*. However, we cannot say for certain what the findings represent in terms of generalizing to the full population of licensed pharmacists working in Ohio.

What is certain is what we cannot glean from this survey and the report.

- We cannot say that the findings reflect the views of all pharmacists licensed and working in Ohio on opioid abuse and diversion or how their work does or does not affect what is happening with opioid abuse.
- We cannot say the findings reflect the views of all pharmacists licensed and working in large chain-grocer/big box stores in Ohio on opioid abuse and diversion or how their work does or does not affect what is happening with opioid abuse.
- We cannot say the findings reflect the views of all pharmacists licensed and working in pharmacies in Ohio owned by The Kroger Co. on opioid abuse and diversion or how their work does or does not affect what is happening with opioid abuse.

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